

Title: Recycling Concrete by Crushing into Road Base

Installation: Redstone Arsenal, Alabama

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Mission Benefits: A ready supply of crushed recycled gravel is used to meet the demand for road base and construction activities on Redstone Arsenal. Concrete is diverted or stockpiled and is not disposed of in the Redstone landfill.

Cost Benefits: 61,000 tons of concrete rubble have been crushed and stockpiled at a cost of \$493,500. Purchase of virgin gravel and the cost of disposing of the concrete as a waste would have cost \$905,850. The cost benefit to the Garrison for recycling concrete has been \$412,350 or about \$137,450 per year.

Environmental Benefits: This action has added 29 years to the “life expectancy” of the Redstone landfill.



Photo by Ken Hewitt

Contractor crushes stockpiled concrete rubble from building demolitions into usable gravel thereby diverting concrete from occupying permitted space in the Redstone landfill.

Description: Between FY 02 and FY 05, Redstone Arsenal recycled 61,000 tons of concrete. It was stockpiled from diverted construction debris and crushed for use as road sub-base material. The Garrison maintains 200 miles of roadway, some of it gravel. The crushed stone is stored on post for current and future road projects and other construction activities on Redstone. The Garrison, utilizing pollution prevention funds through the base contractor, enabled a contractor to pulverize the stockpiled concrete into 2-inch road gravel.

The benefits of this program demonstrate the Garrison’s commitment to pursue money-saving opportunities and promote recycling through good stewardship. With this action, Redstone Arsenal is also participating in reaching the goal of the Department of Defense Measure of Merit (MoM) goal. MoM has as its goal that by the end of FY 2005, the diversion rate of non-hazardous solid waste is to be greater than 40%; while ensuring integrated non-hazardous solid waste management programs provide an economic benefit when compared with disposal using land filling and incineration alone. By diverting concrete, it has saved valuable permitted landfill space and extended the life of the construction/demolition landfill by 29 years. The re-bar is also collected as an impurity and later stockpiled for scrap steel recycling through the Garrison Qualified Recycling Program.

Cost: \$493,500 (\$7.50 per ton to crush 61,000 tons, plus \$36,000 in labor costs to dress and maintain the stockpile for 3 years).

Regulatory Drivers: Executive Order 13101; Department of Defense Measure of Merit Goal.

Lessons Learned:

1. Concrete can be recycled for less than the delivered market price for gravel.
2. Significant landfill capacity is saved by recycling concrete.
3. The Garrison can use all available crushed concrete.

Point of Contact:

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